

CLAIMS

I claim:

1. An apparatus for disinfection of waste water, comprising:  
an elongated passageway;  
at least two injection devices respectively located at spaced dosing locations along the passageway for introduction of a disinfectant to a stream of waste water flowing through the passageway;  
a source of disinfectant;  
a conduit arrangement extending between the disinfectant source and each of the dosing locations; and  
an adjustable flow control device positioned to regulate flow of disinfectant to each of the at least two injection devices through a conduit of the conduit arrangement.
2. The apparatus of claim 1, wherein said disinfectant comprises, at least in part, chlorine.
3. The apparatus of claim 1, wherein said passageway is defined within a contact tank.
4. The apparatus of claim 1, further comprising a controller operably coupled to each of the flow control devices to initiate adjustment of a regulated flow of disinfectant to each of the at least two injection devices.
5. The apparatus of claim 4, further comprising at least one sensor device positioned in the passageway and configured to sense at least one parameter usable for determining a desirable flow of disinfectant into the waste water, the at least one sensor device being operably coupled to the controller, the controller

being programmed to initiate adjustment of at least one of the flow control devices to vary a flow of disinfectant therethrough responsive at least in part to an output signal from the at least one sensor device.

6. The apparatus of claim 4, wherein the controller is configured to initiate adjustment of at least one of the flow control devices to vary a flow of disinfectant therethrough responsive at least in part to a flow rate of the waste water stream and a disinfectant demand of the waste water stream proximate at least one dosing location.

7. The apparatus of claim 1, wherein the plurality of injection devices is in excess of two injection devices.

8. The apparatus of claim 7, wherein the dosing locations are spaced at substantially equal intervals.

9. The apparatus of claim 1, wherein each of the injection devices comprises a group of injectors fed by a single conduit of the conduit arrangement.

10. The apparatus of claim 1, further including a source of dosing liquid in communication with the source of disinfectant.

11. The apparatus of claim 1, further comprising at least one pretreatment unit upstream of the passageway, the at least one pretreatment unit being operable to treat the waste water stream to enhance the effectiveness of the disinfectant.

12. The apparatus of claim 1, further including at least one post-treatment unit positioned downstream of the passageway, the at least one post-treatment unit being operable to further treat the wastewater discharged from the passageway.

13. A method of disinfection of waste water, comprising:  
flowing waste water along an elongated flow path;

introducing a disinfectant into the waste water at a plurality of spaced dosing locations along the flow path; and

controlling a dosage of disinfectant to each of the plurality of dosing locations wherein each dosage of disinfectant is less than a dosage of disinfectant introduced into the waste water at a dosing location upstream thereof.

14. The method of claim 13, wherein the disinfectant comprises, at least in part, chlorine.

15. The method of claim 13, wherein said flow path is defined within a contact tank.

16. The method of claim 13, further including selecting proportional dosages of disinfectant among the plurality of dosing locations such that an effective level of disinfectant is maintained along the flow path employing a total amount of disinfectant less than an amount of disinfectant required for dosing at a single location to maintain the effective level.

17. The method of claim 16, wherein selecting is based at least in part on a flow rate of the waste water and a disinfectant demand of the waste water proximate at least one dosing location.

18. The method of claim 16, further including providing a plurality of dosing locations in excess of two dosing locations.

19. The method of claim 18, further including spacing the dosing locations at substantially equal intervals along the elongated flow path.

20. The method of claim 13, further including providing a source of disinfectant and directing the disinfectant from the source to each of the plurality of dosing locations.

21. The method of claim 20, further including varying the dosage of disinfectant introduced into the waste water at at least one of the plurality of dosing locations at least in part responsive to at least one parameter sensed in the waste water.
22. The method of claim 20, further including providing a source of dosing liquid, mixing the disinfectant with the dosing liquid and carrying the disinfectant to the dosing locations using the dosing liquid.
23. The method of claim 22, further including providing the dosing liquid by diverting a portion of the waste water.
24. The method of claim 13, further comprising pretreating the waste water upstream of the first dosing location.
25. The method of claim 13, further comprising post-treating the waste water downstream from the last dosing location.